

plaster. Over this a "roller" of cotton is passed, to hold the plaster in close contact with the foot. Care must be taken to have the plaster evenly applied, so as not to bear on one edge more than the other. The foot-piece thus attached to the foot will not, probably, need to be reapplied during the three or five weeks that the extension will be required.

2. A straight splint, hollowed out, long enough to extend from the sole of the foot to the upper third of the thigh, with a cushion on it, is placed under the injured limb. A Day's or McIntyre splint (with the foot-board removed), laid out straight, answers the purpose perfectly. The cord attached to the foot is carried in the line of the axis of the limb, to the foot of the bed, where it is passed over a pulley, and to the free end a weight of eight or twelve pounds (as sand in a bag, etc.) is attached. The pulley can be screwed into a board fastened across the foot of the bedstead or into the wall. A compress is laid upon the anterior *surface* of the tibia, and upon this a piece of "binder's board" is placed; around these (the leg and splint) two or three inelastic straps are passed, and fastened by buckles. The thigh is held to the splint by similar means. At the foot of the bed a block is placed, against which the patient rests his sound foot, to prevent himself from sliding down in bed, during the daytime when he is awake. At night a sheet passed between the thighs and fastened at the head of the bed answers the same purpose. The foot of the bedstead may be raised three or four inches higher than the head also. After the apparatus has been adjusted, a strip of light wood is to be fastened across the lower margin of the foot-piece, and resting on the "bed-splint," to keep the foot from rotating to right or left, and to prevent the heel from resting on the "bed-splint." Such an apparatus I have retained on a patient four or five weeks (as long as extension is generally necessary), with great comfort to the patient. Should he complain of pressure on any particular part of the foot, the weight must be reduced, or the particular strap which occasions the pain must be cut at the point of pressure. Oblique fracture of the humerus I have treated in a similar manner, applying the adhesive plaster to the anterior and posterior surfaces of the forearm, with great satisfaction to surgeon and patient. The only objection is that it confines the patient to bed for three or four weeks.

ART. VII.—*On the Corrective Influence of Bromide of Potassium on Opium.* By J. M. DA COSTA, M. D., Physician to the Pennsylvania Hospital, etc.

In an article in this Journal for April, 1870 (p. 365), I called attention to the influence bromide of potassium exerts on the unpleasant effects

produced by opium. I propose here to give some cases which led me to form this opinion, and to examine more particularly into the combined action of these valuable agents.

The first case in which I fairly studied the subject was under my charge about two years ago. A lady affected with a most painful enteric malady, and of very susceptible nervous system, was often attacked with seizures of abdominal pain of most severe character. Yet she generally bore them until they exhausted themselves without taking any remedy, or with such slight help as remedies, excepting opium, afforded, rather than subject herself to the distress this medicine caused. It was not fancy on her part; for when at times, on account of the excruciating character of the pain, she was obliged to resort to opium—usually black drop, which, of all preparations, produced the least disturbance—I have stood by her bedside and myself witnessed the effects of the anodyne. There was relief, certainly, of the abdominal distress, but also itching or tingling sensations all over the body, amounting to positive pain; then numbness more or less extended, usually accompanied by a sense of sinking, and a faintness most severe and constant, and uninfluenced, or with difficulty relieved by stimulants. Complete unconsciousness did not occur, or only existed for a minute or two, when she thought she slept, though a slight movement instantly aroused her; but, to use her own expression, she was “alive nowhere except the head and heart.” Perhaps the best statement of the result from giving the bromide is afforded by still further quoting my observant and accomplished patient in an extract from a note from her: “I have been sending my thoughts back to the time when opium was my horror, and severe pain as easy to bear as its effects. If the pain was relieved, the faintness would return after twelve, fifteen, or even twenty-four hours from the time of taking the opium. Now, on taking twenty grains of the bromide one-half hour before a dose of the watery extract, and again about two hours afterwards, I am pretty secure.” From the first time in which, when giving her the bromide, its influence in preventing the unpleasant consequences of opium was noticed until the present the bromide has not failed us once. On morphia it has least influence, and morphia and codeia always affected her the worst. Still it has an influence, and four doses keep her tolerably comfortable.

A case as striking, though not one in which the observation has been as often repeated, is that of an old lady subject to attacks of diarrhœa, and in whom all opiates, even paregoric, produced faintness, marked, though not so marked as in the preceding instance, but much more decided headache and nausea. By taking forty grains of bromide, in twenty grain doses, beginning about three hours before she takes opium, she bears perfectly well twenty-five drops of laudanum.

Of another case I transcribe the record, as kindly kept for me at the Hospital by my resident physician, Dr. James C. Wilson. It reads thus:—

Annie C., Irish, aged 35, a domestic, widow. Admitted into the Pennsylvania Hospital Feb. 8th, 1871, suffering with anæmia and with impaired digestion, which, however, is not associated with any manifest organic disease; was placed upon tinct. ferri chloridi gtt. xx, t. d., and good diet.

Feb. 12th. Complains of sleeplessness; states that she was awake all last night. This report was corroborated by the night nurse. Was ordered liq. morphiaë sulph. fʒij at bedtime.

13th. Passed a sleepless night. After taking the morphia she experienced a feeling of great weakness; felt dizzy and confused; described herself as "seeing all kinds of strange things." She had headache as these phenomena passed away, with dryness of the throat and great restlessness, which lasted until morning. On rising she had intense nausea and vomiting, which continued until noon. 2 P.M., given potassii bromid. gr. xxx. 8 P.M., liq. morphiaë sulph. fʒij as last night. Pulse 128, respiration 28, temperature 100°.

14th, A.M. Pulse 108, respiration 24, temperature 98 $\frac{3}{4}$ °. States that she slept very well, and feels in every respect quite as well as usual. No dizziness nor headache; no nausea nor vomiting followed the administration of the morphia.

17th, P.M. Pulse 116, respiration 20, temperature 99 $\frac{1}{2}$ °.

18th, A.M. Pulse 96, respiration 20, temperature 98 $\frac{1}{4}$ °. Had taken no medicine, except the tinct. of chloride of iron, since the evening of 13th inst. She again complains of sleeping poorly. Last night she did not fall asleep until towards morning. 8 P.M., given tinct. opii deodorat. gtt. xxv. Pulse 83, respiration 20, temperature 99°.

19th, A.M. Pulse 76, respiration 20, temperature 99°. She states that after taking the medicine last night she felt weak and faint, was dizzy, and fancied that she saw curious and grotesque objects; had no pain in her head, but was restless, and had no sound sleep, although she dozed at times. Had a feeling of faintness and nausea on rising, but no vomiting. 6 P.M., took potassii bromid. gr. xxx; 9 P.M., tinct. opii deodorat. gtt. xxv.

20th. Fell asleep about midnight, and slept well till morning. Had some dizziness, but no feeling of faintness; no confusion or headache after taking the opiate. Had no nausea, vomiting, or faintness on rising.

I will briefly cite one more case, which was very recently under my observation.

A young lady, in whom opium produced most decided faintness and nausea, was attacked with muscular rheumatism, and took laudanum at night to relieve her discomfort. She sent for me the next morning, and I found her with dry throat, giddy, and weak. Prescribing the bromides, partly to counteract the effect of the opium, partly for other reasons, she was enabled to take the opiate without the least inconvenience; and, when a few days afterwards I found that she had been resorting with impunity to an opiate of either Dover's powder or laudanum, every night, I ascertained that, by a misunderstanding of orders, she had continued to take the bromide mixture, in addition to the prescription of acetate of potassa and colchicum, which I had directed to replace it.

I might continue to multiply this narrative of cases, but it will not make the subject any clearer. I shall rather investigate the result, in some special directions, of giving the two remedies. The bromide does not

destroy either the anodyne or the hypnotic effects of the opiate; on the contrary, it rather heightens both, and more particularly the latter. To quote again from the letter of my first patient—"The more bromide I take the sooner do I get sleep after a dose of opium. Two doses of bromide (twenty grains each) are not usually enough to counteract the exciting effects, and procure sleep under five or six hours from the time of taking." The faintness from opium is the phenomenon most markedly prevented; next in the readiness of being influenced stand the headache, vertigo, and nausea, then the itching of the surface, and dry mouth.

The bromide has seemed to me to act best when it is given some hours before the opium, and forty to sixty grains—generally forty grains—prove sufficient. But it also has an action, sometimes, however, markedly less, when combined with opium; and, should unpleasant consequences have accrued from this, the bromide will mitigate their severity. Even the cutaneous itching is favourably influenced, and I have known repeated doses most decidedly affect the faintness. When morphia is used hypodermically, it is then most necessary to give the bromide some time in advance, and it may take larger doses to accomplish the purpose. At least it has so seemed to me—though I have not often tested this, since most of the observations were made in persons who took opium by the mouth.

Now, though I think that the corrective influence of the bromide on opium holds good as a general truth, we meet at times with exceptions. Dr. Wallace, to whom I had mentioned the matter, told me that while he had in several instances obtained the most gratifying results, he had failed in one; and Dr. James C. Wilson has taken notes for me of a patient in the Pennsylvania Hospital suffering from advanced phthisis, in whom sleeplessness, a feeling of confusion, dizziness, and dull throbbing, frontal headache, and nausea and vomiting in the morning were caused by one drachm of the solution of sulphate of morphia. The addition of the same amount of spirits of chloroform obviated the unpleasant results, though it finally failed; and sixty grains of the bromide did not prevent one-fourth of a grain from producing the disagreeable consequences.

But these exceptions are not, I believe, numerous, and the bromide does not often disappoint. Of course, in investigating its value with reference to the questions here discussed, we have to test it on those with whom opium really disagrees, and not on such who merely say that it does; for, from some reason or the other, many persons seem to think it a point of honour to make this statement, though out of ten such persons nine are quite certain to be able to bear the anodyne as readily, and to derive as much advantage from it, as the rest of mankind with whom it professedly does not disagree. Yet, considering the number of therapeutical applications of the invaluable drug, and the fact that we may be prevented from using it in instances in which its employment might be of the greatest moment, because to use it seems impossible, it will be of service to be able to control

its action, and the remarks here made will, I trust, prove to represent the full truth. Moreover, they may be looked upon as a contribution towards a most interesting and comparatively neglected part of therapeutics, what may be called the *corrective influence* of one drug over the other; corrective in obviating its bad results, while not interfering with, but rather heightening, the good ones.

ART. VIII.—*Hydrate of Chloral in Singultus*. By T. L. LEAVITT, M.D.,
of Germantown, Pa.

No new remedy has perhaps received such universal attention and trial as the hydrate of chloral, and justly so, for during the brief period of its therapeutic existence it has proved wonderfully successful in the very many instances of its exhibition. Numerous are the testimonies of practitioners as to its merits; insomnia, acute suffering, chronic diseases, and even child-bearing, have all been recorded as relieved through its potent agency.

To add one more to the extensive list of sufferings relieved as yet unannounced, I record the following cases of distressing singultus, which the physician has so frequently to contend with in cases of low fever and the general failing of vital power. Wearing and exhausting to the patient, and distressing to anxious friends, any pharmaceutical agent affording even temporary relief is hailed with eagerness, and most especially so after the well-worn changes have been rung unsuccessfully on musk, ether, the bromides, and the antispasmodics in general.

Mr. H., æt. 60, after suffering for many years with an obscure disease, probably having its origin in the spinal cord, finally became so emaciated and debilitated as to be confined to his bed, where, after the first few days of gradual decline, a distressing and obstinate hiccough set in, producing rapid loss of strength and proving of great annoyance to the patient. Sulphuric ether in capsules, bromide of potassium and ammonium in solution, musk, camphor, &c., were all exhibited in turn, but failed to give any permanent relief, for they lost their controlling power after a few trials. The chloral hydrate was then used in five-grain doses in solution, and arrested almost immediately the singultus, and never afterwards failed to control the spasm in a most satisfactory manner, proving of the greatest comfort to the last remaining hours of the sick man.

Two other cases of obstinate hiccough, occurring subsequently in typhoid fever, were treated in the same manner, with the same pleasing result, the patients recovering finally.

It remains, of course, for more extended trial to fully establish this drug among the remedial agents in singultus, but certainly the results in the few cases coming under my notice have proved it to be of the highest value.